BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

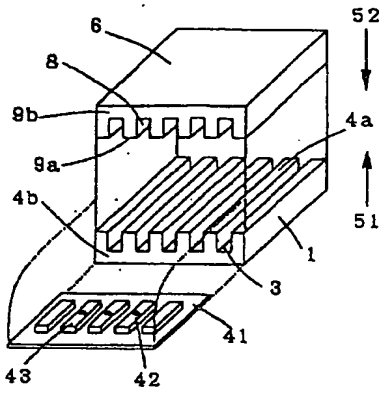
IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images, please do not report the images to the Image Problem Mailbox.

(54) LIQUID-DROP JET APPARATUS
(11) 4-353456 (A) (43) 8.12.1992 (19) JP
(21) Appl. No. 3-127489 (22) 30.5.1991
(71) BROTHER IND LTD (72) HIROTO SUGAWARA(2)
(51) Int. Cl⁵. B41J2/045,B41J2/055

PURPOSE: To provide the apparatus enhanced in yield in a manufacturing process.

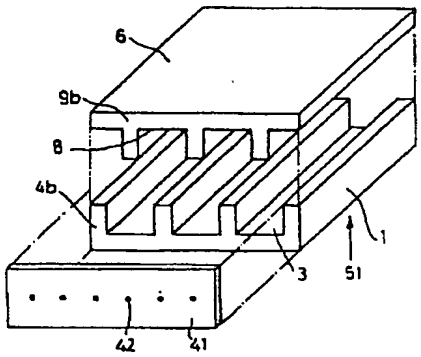
CONSTITUTION: In a liquid-drop jet apparatus equipped with a plurality of jet devices injecting the ink in ink passages by changing the volumes of the ink passages using a piezoelectric transducer, the ink flow passages are formed by a plurality of the grooves provided on a piezoelectric transducer 1 and, since the plate having a plurality of ink jet orifices engaged with the piezoelectric transducer 1 has protruding parts on its surface engaged with the piezoelectric transducer 1 at the same interval as the ink passages, the alignment of the piezoelectric transducer 1 and the orifice plate is easy and the liquid-drop jet apparatus improved in the yield in a manufacturing method can be provided.



(54) LIQUID-DROP JET APPARATUS
(11) 4-353457 (A) (43) 8.12.1992 (19) JP
(21) Appl. No. 3-129437 (22) 31.5.1991
(71) BROTHER IND LTD (72) HIROTO SUGAWARA(2)
(51) Int. Cl⁵. B41J2/045,B41J2/055

PURPOSE: To provide the apparatus facilitated in the groove processing of a piezoelectric transducer and reduced in processing cost.

CONSTITUTION: In a liquid-drop jet apparatus equipped with a plurality of jet devices injecting the ink in ink passages by changing the volumes of the ink passages using a piezoelectric transducer, two piezoelectric ceramics plates each having grooves each wider than each of the ink passages are bonded or one piezoelectric ceramics plate and a non-piezoelectric material are bonded. When the interval between the adjacent ink passages is reduced in order to enhance the degree of integration of ink droplets, the groove processing of piezoelectric ceramics becomes easy as compared with a conventional method and processing cost can be reduced.



(54) INK JET HEAD
(11) [redacted] (43) 8.12.1992 (19) JP
(21) Appl. No. 3-129438 (22) 31.5.1991
(71) BROTHER IND LTD (72) YOSHINORI BESSHO
(51) Int. Cl⁵. B41J2/045,B41J2/055

PURPOSE: To provide a low power consumption type ink jet head emitting a very small amount of ink to record the same on recording paper, extremely easy to manufacture and improved in energy efficiency.

CONSTITUTION: A thin insulator low in heat conductivity and having thickness of about 50μm is used as the lid plate of ink chambers and a plurality of thin film resistors are provided on the upper surface thereof. By bonding the lid plate to a base substrate having ink passages and a plurality of ink chambers, an ink jet head is constituted. When a current is supplied to the thin film resistors, the lid plate is partially curved by thermal elastic bending effect to suck ink. When a current is cut off, the lid plate shrinks rapidly to emit the ink to perform recording. By repeating this operation, a character is printed.